

ABSTRACT

A tunable microlens uses at least two layers of electrodes and a droplet of conducting liquid. Such a droplet, which forms the optics of the microlens, moves toward an electrode with a higher voltage relative to other electrodes in the microlens. When calibration of the microlens is desired, an equal and constant voltage is passed over the first layer of electrodes and a different, constant voltage is passed over the second layer of electrodes, which may, for example, be disposed in a star-like pattern. A driving force relative to each electrode in the second layer results and is proportional to the length of the circumference of the droplet that intersects with each of the electrodes. This driving force reaches equilibrium, and hence the droplet reaches its nominal centered position relative to the second layer of electrodes, when the length of intersection of the circumference of the droplet with each of the electrodes in the second layer is equal.